Notice of Allowability	Application No.	Applicant(s)	
	10/678,053	HEATH ET AL.	
	Examiner	Art Unit	
	Dac V. Ha	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed on 11/03/06*.

2. ☒ The allowed claim(s) is/are *1-78, renumbered as 1-78, respectivley*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claims 56-78 are replaced with the followings:

56. (Currently Amended) A wireless communication device comprising:

a channel estimator, responsive to one or more antennas, to receive a plurality of signals associated with a communication channel, and Io obtain a measurement of the communication channel;

a processing element, responsive to the channel estimator, to compute for a plurality of proposed mapping schemes a minimum Euclidean distance between symbols of the received signal(s) based, at least in part, on the channel measurement; and

a selection block, responsive to at the processing element, to select a mapping scheme from the proposed mapping schemes based, at least in part, on the computed Euclidean distance with the 0ommunieationohannel, wherein the selected mapping scheme denotes how content at a remote communications device is to be applied to one or more antenna(s) associated with the remote communications device, and

wherein the wireless communication device is able to provide an indication of the selected mapping scheme to the remote communications device.

57. (Currently Amended) A wireless communication device according to claim 56, wherein the performance parameter is one or more of a measure of receive signal strength, a measure of interference, a signal-to-noise ratio (SNR), a signal-to-interference and noise ratio (SINR), a bit-error rate (BER), a packet-error rate (PER).

58. (Previously Presented) A wireless communication device according to claim 56, wherein the channel estimator obtains a measurement of the channel coefficients matrix H characterizing the communication channel.

59. (Previously Presented) A wireless communication device according to claim 58, wherein selection block selects an applied mapping scheme for use by a remote transmitter of the communication channel from a plurality of potential mapping schemes based, at least in part, on the measurement of the channel coefficient matrix H.

60. (Currently Amended) A wireless communication device according lo claim 58, further comprising:

a local transmitter, responsive to the selection block, to provide the indication of the selected mapping scheme to the remote communication device for application to subsequent transmission via the communication channel.

61. (Previously Presented) A wireless communication device according to claim 56, wherein the proposed mapping schemes include one or more of modulating said

data in a constellation selected from the group consisting of PSK, QAM, GMSK, FSK, PAM, PPM, CAP, CPM.

62. (Previously Presented) A wireless communication device according to claim 56, wherein the wireless communication device is a wireless station in a wireless network including one or more antenna(e) through which downlink signals are received from remote wireless access point.

63. (Previously Presented) A wireless communication device according to claim 56, further comprising:

a memory system to store content including executable content; and

one or more processor element(s), coupled with the memory system, to selectively access and execute at least a subset of the stored content to implement one or more of the channel estimator, computing block and selection block.

64. (Previously Presented) A wireless communication device comprising:

a channel estimator, responsive to one or more antennas, to receive a plurality of signals associated with a communication channel, and to obtain a measurement of the communication channel;

a processing element, responsive to the channel estimator, to compute for a plurality of proposed mapping schemes a probability of error of the received signal(s); and

a selection block, responsive to the processing element, to select a mapping scheme from the proposed mapping schemes based, at least in part, on the computed probability of error, wherein the selected mapping scheme denotes how content at a remote communications device is to be applied to one or more antenna(s) associated with the remote communications device, and wherein the wireless communication device is able to provide an indication of the selected mapping scheme to the remote communications device.

65. (Previously Presented) A wireless communication device according to claim 64, wherein the performance metric is one or more of a measure of receive signal strength, a measure of interference, a signal-to-noise ratio (SNR), a signal-to-interference and noise ratio (SINK), a bit-error rate (BER), a packet-error rate (PER).

66. (Previously Presented) A wireless communication device according to claim 64, wherein the channel estimator obtains a measurement of the channel coefficients matrix H characterizing the communication channel.

67. (Previously Presented) A wireless communication device according to claim 64, further comprising:

a local transmitter, responsive to the selection block, to communicate the select applied mapping scheme to a remote transmitter of the communication channel for application to subsequent via the communication channel.

68. (Previously Presented) A wireless communication device according to claim 64, wherein the proposed mapping schemes include one or more of modulating said

data in a constellation selected from the group consisting of PSK, QAM, GMSK, FSK, PAM, PPM, CAP, CPM.

69. (Previously Presented) A wireless communication device according to claim 64, further comprising:

a memory system to store content including executable content; and one or more processor element(s), coupled with the memory system, to selectively access and execute at least a subset of the stored content to implement one or more of the channel estimator, computing block and selection block.

70. (Currently Amended) A wireless communication device comprising:

a conversion unit; to receive data for wireless transmission to a remote device and to convert the received data into symbols;

an assignment unit, responsive to the conversion unit, to assign the symbols to transmit signals TS_p of the communication channel, where p=l...M, for transmission from M transmit antennas; and

a receive element, coupled with the conversion unit and the assignment unit, to receive an indication of a selected mapping scheme from a plurality of possible mapping schemes from a remote communication unit, wherein the conversion and assignment are performed in accordance with the select mapping scheme.

71. (Previously Presented) A wireless communication device according to claim 70, wherein the indication of the selected mapping scheme is received from a remote wireless communication device and is selected based, at least in part, on a minimum Euclidean distance of symbols in the received signals TS_p.

72. (Previously Presented) A wireless communication device according to claim 70, wherein the indication of the selected mapping scheme is received from a remote wireless communication device and is selected based, at least in part, on a probability of error of said symbols in the received signals TS_p.

73. (Previously Presented) A wireless communication device comprising:

two or more omnidirectional antenna(e) through which signals associated with a communication channel are received;

a channel estimator, responsive to at least a subset of the antennas, to obtain a measurement of the received communication channel;

a processing element, responsive to the channel estimator, to compute for a plurality of proposed mapping schemes a minimum Euclidean distance between symbols of the received signal(s) based, at least in part, on the channel measurement; and

a selection block, responsive to estimator and the processing element, to select a mapping scheme from the proposed mapping schemes based, at least in part, on the computed minimum Euclidean distance to, wherein the selected mapping scheme denotes how content at a remote communications device is to be applied to one or more antenna(s) associated with the remote communications device, and wherein the wireless communication device is able to provide an indication of the selected mapping scheme to the remote communications device.

74. (Previously Presented) A communication device according to claim 73, comprising:

a local transmitter, responsive to the selection block, to provide the indication of the selected mapping scheme to the remote communication device for application to subsequent transmission via the communication channel.

75. (Previously Presented) A wireless communication device according to claim 74, wherein the proposed mapping schemes include one or more of modulating said data in a constellation selected from the group consisting of PSK, QAM, GMSK, FSK, PAM, PPM, CAP, CPM.

76. (Previously Presented) A wireless communication device comprising:

two or more omnidirectional antenna(e) through which signals associated with a communication channel are received;

a channel estimator, responsive to at least a subset of the antennas, to obtain a measurement of the received communication channel;

a processing element, responsive to the channel estimator, to compute for a plurality of proposed mapping schemes a probability of error of the symbols of the received signal(s); and

a selection block, responsive to and the processing element, to select a mapping scheme from the proposed mapping schemes based, at least in part, on the computed probability of error, wherein the selected mapping scheme denotes how content at a

remote communications device is to be applied to one or more antenna(s) associated with the remote communications device, and wherein the wireless communication device is able to provide an indication of the selected mapping scheme to the remote communications device.

77. (Previously Presented) A communications device according to claim 76, further comprising:

a local transmitter, responsive to the selection block, to communicate the select applied mapping scheme to a remote transmitter of the communication channel for application to subsequent transmission via the communication channel.

78. (Previously Presented) A wireless communication device according to claim 76, wherein the proposed mapping schemes include one or more of modulating said data in a constellation selected from the group consisting of PSK, QAM, GMSK, FSK, PAM, PPM, CAP, CPM.

2. The following is an examiner's statement of reasons for allowance:

Upon further consideration and comparison with prior art of record (closest reference, Kwon et al. – US 6,151,328 and Needham et al. – US 5,764,699), examiner agrees with applicant's argument in the REMARKS filed on 11/03/06. Particularly, in the present invention, the remote unit actually selects a mapping scheme then provides an indication of the selected mapping scheme to the source of the transmitted signals instead of the selection is performed at the source of the transmitted signals as in prior

art. Thus, amended claims 56-78 are found to be novel and unobvious over prior art of record. Claims 1-55 were allowed previously.

Also, a supplemental declaration is not need for the amendment since the amendment is solely directed to form and is not based on the merits of the application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 4/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dac V. Ha
Primary Examiner
Art Unit 2611